

### REMARKS

Applicant hereby requests continued examination under 37 C.F.R. §1.114, and submits this second amendment in response to the office action mailed June 3, 2003. That office action finally rejected all claims under 35 U.S.C. §103(a) in light of U.S. Patent No. 5,285,708 to Boston et al. combined with U.S. Patent No. 3,785,230 to Lokey. Applicant traverses that rejection because: 1) the Examiner incorrectly stated that certain statements in the claims "do not further limit the claimed invention because they are merely functional/intended use not defining any specific structure," and 2) the claims as currently amended are not obvious in light of the Boston and Lokey patents. These points are explained below.

#### Functional Language / Intended Use

The currently pending claims all include functional limitations. For example, claim 25 describes a saw including "a detection system configured to detect a dangerous condition between a person and the blade," and "a brake system to engage the blade upon detection of the dangerous condition between the person and the blade, and configured to use at least part of the angular momentum of the blade to generate a force tending to urge the axis around which the blade rotates away from the work surface when the brake system engages the blade." These statements limit the claim to detection and brake systems configured as specified. The Examiner, however, said that statements like these "do not further limit the claimed invention because they are merely functional/intended use not defining any specific structure." The Examiner is incorrect in saying these statements do not limit the claim.

Courts have made it clear that functional statements like those in claim 25 limit claims and must be considered. See, e.g., Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 39 USPQ2d 1783 (Fed. Cir. 1996); In re Venezia, 530 F.2d 956, 189 USPQ 149 (CCPA 1976); In re Swinchart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971). In fact, the Manual of Patent Examining Procedure [hereinafter MPEP], §2173.05(g), states: "A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." The functional statements at issue in the pending claims all describe how detection and/or brake systems must be configured, and therefore should be evaluated and considered just like the other limitations in the claims.

Statements of intended use, as far as applicant is aware, are usually found in the preamble of a claim and they describe how a claimed device is to be used, such as "a saw used to cut wood." However, even statements of intended use in a preamble may limit a claim if the statements help define the claimed invention. See, MPEP §2111.02 and cases cited therein. In the case at hand, the statements at issue are not statements of intended use because they are not found in the preamble and because they do not specify how the claimed saw is to be used. But even if the statements at issue were statements of intended use, they would still have to be considered because they limit the claim by specifying how the detection and brake systems must be configured or adapted.

Thus, the functional statements at issue in the claims should be considered in determining patentability, and it was error for the Examiner not to do so. Applicant respectfully requests the Examiner to consider those limitations.

The Claims are not Obvious in Light of Boston and Lokey

Whether applicant's claims are obvious under 305 U.S.C. §103(a) depends on the following factors: 1) the scope and content of the prior art, 2) the differences between the prior art and the claims at issue, 3) the level of ordinary skill in the pertinent art, and 4) secondary considerations such as a long felt but unsolved need, failure of others, and awards and recognition. Graham v. John Deere, 383 U.S. 1, 148 USPQ 459 (1966). Applying these factors to the currently pending claims shows that the claims are not obvious. These factors are discussed below.

Scope and Content of the Prior Art

The scope and content of the prior art includes the Boston and Lokey patents cited by the Examiner.

Differences Between the Prior Art and the Claims

Applicant asserts that the claims pending prior to this amendment were not obvious because of differences between the claims and the prior art. Specifically, claims 25-27, 29 and 30, required a brake system that tended to urge a blade away from a work zone when the brake system engaged the blade, and claims 31-34 required a brake system that limited the movement of a blade into a work zone. Neither Boston nor Lokey discloses or suggests such a brake system. Nevertheless, applicant hereby amends its pending claims to further distinguish Boston and Lokey.

Claims 25-27, 29, 30 and 35 have all been amended to describe a saw having "a base configured to rest on a generally horizontal surface to support the saw during operation." Applicant also amended the claims to require "a work surface supported by

the base above the generally horizontal surface on which a workpiece may be cut," and applicant specified that the blade is adapted to cut a workpiece "on" the work surface. The claims further require "a brake system ... configured to use at least part of the angular momentum of the blade to generate a force tending to urge the axis around which the blade rotates away from the work surface when the brake system engages the blade." These limitations require the saw to have a work surface on which a workpiece may be cut and a brake system that tends to urge the blade away from that work surface if there is an accident.

These limitations distinguish the Boston and Lokey patents. Bosten discloses a miter saw with a base, work surface, blade, and motor, but without any detection or brake system. Lokey discloses a hand-held circular saw without a base or work surface, but with an "automatic safety brake." The Examiner says it would have been obvious to use the automatic safety brake of Lokey on the miter saw shown in Bosten. However, if Bosten was modified to include Lokey's safety brake, the result would be to generate a force tending to urge the blade *toward* the work surface, not away from it.

Blade 36 in the miter saw shown in Fig. 1 of Bosten spins counterclockwise. The blade is mounted on a support arm 28 that is pivotally connected to a support 24 by a coupling 30. As shown in Fig. 1, support arm 28 pivots counterclockwise around coupling 30 to move the blade toward a work surface 18 to cut a workpiece thereon. If the safety brake of Lokey were installed on the Bosten miter saw, and if the brake tried to stop blade 36 from spinning, then the angular momentum of the spinning blade would be transferred to support arm 28 through the brake. The support arm would then try to spin

in the same direction as the blade due to the conservation of angular momentum. The support arm would then move down toward work surface 18 because that is the only movement it can make that is in the same direction as the blade was spinning. The support arm would move down regardless of whether Lokcy's brake was position at the front or back of the blade. That movement toward the work surface is the opposite of what is required by claims 25-27, 29, 30 and 35.

Applicant is hereby submitting the declaration of inventor Stephen F. Gass, who is also a Ph.D. physicist, as evidence that the blade in the miter saw of Bosten would move down toward the work surface if it was braked by the safety brake shown in Lokcy. Paragraphs 7 and 8 in that declaration specifically address this issue. In paragraph 9 of his declaration, Dr. Gass explains that he has "actually built and tested miter saws similar in construction to the one shown in Bosten with brake systems mounted adjacent the blade." Dr. Gass continues, "In each test, the blade would move toward the work surface of the miter saw with significant force when the brake engaged the blade."

The requirement that the brake system tend to urge the blade *away* from the work surface is a significant difference between applicant's claims and the prior art. That requirement helps to reduce any injury that a user may incur from accidentally contacting the spinning blade. The prior art combination of Bosten and Lokey, in contract, would tend to urge the blade *toward* the work surface, which could result in a more severe injury. Additionally, neither the Bosten patent nor the Lokey patent discusses urging a blade away from a work surface. Neither patent even mentions the fact that the angular momentum of a spinning saw blade may tend to urge the blade toward a work surface,

potentially causing a more severe injury, which is the issue addressed by applicant's claims.

Applicant's claims 31-34 are also different from the prior art. Those claims all describe a woodworking machine having a base and work surface as described above. They further require "a work zone adjacent the work surface," "a blade adapted to move into the work zone to cut [a] work piece," "a detection system adapted to detect contact between a person and the blade," and "a brake system adapted to limit movement of the blade into the work zone upon the detection of the contact."

As explained above, the combination of Bosten and Lokey fails to disclose or suggest any brake system adapted to limit movement of a blade into a work zone. To the contrary, the combination of Bosten and Lokey would move the blade further into the work zone, as explained.

#### The Level of Ordinary Skill

Applicant has not determined the level of ordinary skill in the art, but assumes it is a mechanical engineer with several years experience.

#### Secondary Considerations

Every year in the United States there are over 90,000 people severely injured with power saws, according to the U.S. Consumer Product Safety Commission, National Electronic Injury Surveillance System, Directorate for Epidemiology, 2001.<sup>1</sup> These are all severe injuries that require a visit to a hospital emergency room. About 10% of these injuries result in amputations. The number and severity of these injuries clearly shows

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<sup>1</sup> These statistics are publicly available from the U.S. Consumer Product Safety Commission.

there is a long felt need for safer saws. The fact that others have tried to solve this problem is evidenced by the Lokey, Yoneda and other patents cited by the Examiner. However, the continued high number of severe injuries shows that those attempts have failed. Fortunately, saws constructed as required by applicant's currently pending claims have the potential to significantly reduce the severity of these injuries.

Additionally, saws constructed as required by applicant's currently pending claims are recognized as new and innovative by various entities associated with the woodworking industry, as shown by the following awards (See Gass Decl., ¶10):

- **Chairman's Commendation.** In July 2001, the U.S. Consumer Product Safety Commission reviewed and tested a saw constructed as required by applicant's claims. As a result of that review, then-Chairman Ann Brown awarded the saw a Chairman's Commendation for significant contributions to product safety. Only a handful of products have ever won that award. That award was reported nationally on CNN Headline News on July 21 and 22, 2001.
- **Challenger's Award.** At the International Woodworking Fair 2000, in Atlanta, Georgia, saws constructed as required by applicant's claims won the Challenger's Award, which is the woodworking industry's highest honor. It recognizes the most innovative and technically advanced improvements to woodworking equipment.
- **Popular Science - One of the 100 Best New Innovations.** The magazine *Popular Science* identified saws constructed as required by applicant's claims as one of the 100 best new innovations of 2002.

- Workbench Magazine – One of the Top 10 Tools for 2003. *Workbench* magazine included saws constructed as required by applicant's claims on its list of the top 10 innovative tools for 2003.

- Woodwork Institute of California Endorsement. The Woodwork Institute of California has endorsed saws constructed as required by applicant's claims, stating:

As a Trade Association in the construction industry (representing over 250 manufacturers of architectural millwork with an excess of 4,000 employees, all of whom use saws of one type or another) we find your SawStop technology and its potential of eliminating or reducing worker injury of extreme significance. Generally, we would not endorse a commercial product; however the potential benefit to our members and their employees of implementing the SawStop technology on the tools used within our industry overrides such. (Letter dated 11/30/00 from Stanley R. Gustafson, CEO/Secretary, Woodwork Institute of California, to Stephen Gass.)

- Editor's Choice Award, Tools of the Trade. The magazine *Tools of the Trade* awarded its 2001 Editor's Choice Award to saws constructed as required by applicant's claims in recognition of the significance of the new technology.

Saws constructed as required by applicant's claims have also been the subject of extensive media coverage, including national coverage by CNN Headline News, by the television program NEXT@CNN, by the Associated Press, and by Paul Harvey on the ABC Radio Network. (See Gass Decl. ¶11.) That media coverage indicates that saws constructed as required by applicant's claims are novel and noteworthy. Numerous magazines have published reports about the saws, and have referred to them as "revolutionary," "unique," and "ingenious." Id.

Many magazine reports have specifically mentioned that the blade in the saw moves away from a work surface. Id. For example, the report in the November 2000 issue

of Woodshop News says, “[T]he blade’s inertia causes the arbor to drop, bringing the blade below the table. Instead of a serious injury, or perhaps even amputation, a minor cut is the only result.” Id. Similarly, in the March 2001 issue of Wood magazine, the report explains, “The torque of the sudden stop pulls the blade downward into the saw ....” Id.

The U.S. Consumer Product Safety Commission also studied a saw constructed as required by the pending claims, and issued a memorandum reporting the study. The feature of the blade moving away from a work surface was mentioned as “an important factor.” Specifically, the CPSC stated: “A typical SawStop reaction to contact with a hot dog resulted in almost immediate retraction of the blade and cessation of the blade rotation within 4 milliseconds. Time for the blade to retract below the surface of the table saw depends on the blade height set for the cut. An important factor is the fact that however long it takes for the blade to stop rotating, the hazardous cutting edge of the blade is already moving away from the contact point.” See Gass Decl., ¶12.

#### Summary Concerning Non-Obviousness

The functional limitations in applicant’s claims must be considered, and those limitations differentiate applicant’s claims from the prior art. The Bosten and Lokey patents do not disclose or suggest a saw with a brake system configured to used the angular momentum of a spinning blade to generate a force tending to urge the blade away from a work surface, or limit the movement of the blade into a work zone. These differences show that applicant’s claims are non-obvious. That conclusion is strongly supported by the secondary considerations of non-obviousness; specifically, a long-felt

but unsolved need, industry awards, and media recognition. Therefore, applicant requests the Examiner to withdraw the final rejection and allow the pending claims.

Double Patenting

The Examiner also provisionally rejected claims 25-27 and 29-34 under the judicially created doctrine of obviousness-type double patenting. Applicant traverses that provisional rejection. Applicant understands that this rejection may be withdrawn when it is the only rejection remaining in this application (see MPEP §804), and therefore applicant requests that the discussion of this rejection be postponed pending resolution of the issues discussed above.

Respectfully submitted,

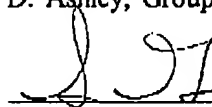
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CERTIFICATE OF FACSIMILE

I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office, Attention: Examiner Boyer D. Ashley, Group Art Unit 3724, to facsimile number: (703) 872-9302 on July 23, 2003.



Stephen F. Gass  
Date of Signature: July 23, 2003